

APPARATUS AND METHOD FOR  
PROVIDING GAIN EQUALIZATION

ABSTRACT

In one aspect of the invention, a gain equalizer comprises a wavelength division demultiplexer operable to separate one or more communication bands into a plurality of wavelengths and an array of phase shifter stages. Each phase shifter stage comprises a micro-electro-optic system (MEMS) device comprising a moveable mirror layer operable to receive a first copy of an input signal from a beam splitter and to reflect the first copy of the input signal for combination with a second copy of the input signal at an output to form an output signal. The moveable mirror layer is displaceable in a substantially piston-like motion to introduce a phase shift between the first and second signal copies at the output, the amplitude of the output signal varying depending on the displacement of the moveable mirror layer. The gain equalizer further comprises a wavelength division multiplexer operable to receive a plurality of phase shifted wavelengths from the second beam splitter and to multiplex at least some of the phase shifted wavelengths into an optical output signal.